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CONTRIBUTIONS TO THE VASCULAR FLORA OF BOREAL SASKATCHEWAN, CANADA[1]

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The flora of boreal Saskatchewan is poorly known, especially of the region north of 55° latitude. Despite collections by various persons dating back to the early 19th Century, adequate floristic inventories have been limited to very few areas in northern Saskatchewan, with most of the region remaining botanically unexplored. Among the earliest plant collections from boreal Saskatchewan were those made by John Richardson and Thomas Drummond, while with the First (1819–22) and/or Second (1825–27) Franklin Arctic Expeditions respectively, with their results largely published in Hooker (1829–1840). Some plant specimens were acquired from the southern fringe of the boreal forest by N. Bourgeau, a botanist on the Captain John Palliser Expedition of 1857–59. During 1872–1881, John Macoun, and in 1888 his son, James M. Macoun, collected plants on the Upper Churchill and the Clearwater Rivers, especially at Methy Portage and areas somewhat upstream, while with expeditions of the Geological Survey of Canada. In 1891, J. B. Tyrell obtained some botanical samples between Lake Athabasca and the Churchill River. Quite comprehensive collections were made in 1926 by Hugh M. Raup in the Lake Athabasca area (Raup, 1936). Largely in the decade preceding 1943, numerous plant

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collections were accumulated by W. P. Fraser and R. C. Russell, primarily from the general Prince Albert-Prince Albert National Park-Montreal Lake region of Saskatchewan's southern boreal forest. The following decade saw extensive plant collecting undertaken by A. J. Breitung, especially in the Melfort-Bjorkdale-Nipawin region on the southern boreal forest fringe of east-central Saskatchewan. During 1953–54, John H. Hudson made a comprehensive collection in the Amisk Lake area. Over a span of about 20 years, George F. Ledingham, who has collected primarily in southern Saskatchewan, also gathered plant samples from various boreal Saskatchewan areas, including, in particular, Lac la Ronge, the Montreal Lake-La Ronge Road, and Wollaston Lake Post. G.W. Scotter (1961 & 1964) obtained botanical voucher specimens in conjunction with his caribou range studies in the region of Black Lake northward to the boundary of the Northwest Territories. During various boreal Saskatchewan expeditions in the 1960s, George W. Argus collected at Lake Athabasca, Carswell Lake, and Hasbala-Patterson Lakes region in the northeastern corner, and along the Hanson Lake Road (Argus, 1964, 1966, & 1968). Relatively thorough collections have been obtained from the Candle Lake area by the cumulative efforts of G. W. Argus, J. M. A. Swan (1966), J. K. Jeglum (1972), and H. K. Anderson (1976). In conjunction with a vegetation study of the Saskatchewan River delta marshes near Cumberland House, numerous voucher specimens were collected by H. J. Dirschl (1972) and his assistants. Further ecological studies and collections have been made in the sand-dune area south of Lake Athabasca by Hermesh (1972) and more recently by G. W. Argus.

Since 1970, the present authors, along with students and associates, have conducted various botanical field studies in boreal Saskatchewan, and made quite extensive plant collections. The results of a floristic survey along the Green Lake-La Loche Road were published by Harms (1974). Other boreal Saskatchewan areas surveyed and collected by the authors include the La Ronge-Southend and Wollaston Lake Roads (Hwys. 102 and 105, respectively), west side of Wollaston Lake, Reindeer and eastern Churchill Rivers, Sandy Bay-Island Falls vicinity, the Pelican Narrows-Sandy Bay Road, Meadow Lake Provincial Park, Greenwater Lake, Porcupine Hills, and elsewhere. Some of the above were the focus of environmental baseline and impact assessment investigations pre-

ceding proposed hydroelectric or mining developments, including the lower Churchill and Reindeer Rivers, the Collins Bay-Hidden Bay area of Wollaston Lake, and the Cluff Lake area. Although the relatively detailed information from the latter botanical surveys has been the subject of various reports (Heilman-Ternier & Harms, 1974; Harms, 1977a and 1977b), unfortunately these have very limited distribution and availability to the scientific community.

Recent plant collections have often added considerably to the distributional knowledge of the flora of boreal Saskatchewan. Other earlier collections of phytogeographical significance frequently had been filed in herbaria without having been reported in the literature, and other such specimens have been forwarded to the Fraser Herbarium for identification. These additional records from recent and earlier unreported collections have helped to fill in or to amplify the known distributions of various plant species in Saskatchewan, and sometimes have represented significant range extensions. The intent of this article is to share with interested naturalists, taxonomists, ecologists, and phytogeographers some of the phytogeographically more significant distributional data now available concerning various vascular plant species in boreal Saskatchewan. This supplements several earlier papers (Harms & Hudson, 1978; Harms, 1978) which respectively reported 13 vascular plant species new to the flora of Saskatchewan, and range amplifications for various orchid taxa.

For each of the species' entries below, the citations of our more recent collections are followed by a review of previous literature reports for the taxon in Saskatchewan and a listing of other herbarium records seen, concluding with brief distributional or taxonomic comments if appropriate. The names of collectors in the specimen citations have mostly been shortened to surnames. These include those of the authors, our primary field assistants (Marie A. Jasieniuk, Sheila M. Lamont, N. Andy Skoglund, Rob A. Wright, and John Polson), as well as others among the more frequently cited collectors (including George F. Ledingham, G. W. Argus, Zoheir Abouguendia, J. S. Maini, Howard G. Anderson, Tom F. Cameron, Luc Delanoy, Don Dabbs, Reinhard Hermesh, Herman J. Dirschl, J. M. A. Swan, J. B. Millar, Robert A. Godwin, & J. R. Caldwell). The collections of Judy Heilman-Ternier prior to 1974 are cited as "Ternier", while her 1974 collections, which were jointly made with Jim Heilman and labeled "J. & J. Heilman" on the

specimen sheets, are cited simply as "Heilman". Unless otherwise indicated, all specimens cited have been deposited in the Fraser Herbarium (SASK) of the University of Saskatchewan. For brevity in the citations of collections, abbreviations are used for directions, units of distance, and such place name words as lake, river, creek, island, point, etc. The 95 species entries below are alphabetically arranged under genera and families, with the families taxonomically arranged according to the traditional Engler-Prantl sequence. To aid readers in better comprehending the locality information, a map (fig. 1) showing the general vegetation zones, larger lakes and rivers, important place names, and latitude-longitude coordinates in Saskatchewan is included. In addition, Table 1 provides the latitude-longitude coordinates for the other localities most frequently cited in this report, to avoid the repetition of these throughout the paper.

Table 1. Latitude and Longitude Coordinates for Various Cited Localities in Boreal Saskatchewan

Amisk L.: Denare Beach	54°40′N; 102°05′W
Beaupre L.	54°32′N; 107°10′W
Besnard L.	55°20–30′N; 105°45′–106°15′W
Big Sandy L.	54°27′N; 104°06′W
Carrot R. Prov. Forest	53°22′W; 103°30′W
Churchill R.:	
Devil L.	55°40′N; 104°45′W
Island Falls	55°32′N; 102°21′W
Keg L.	55°24′N; 104°00′–05′W
Keg Falls	55°23′N; 103°54′W
Missinipe	55°36′N; 104°46′W
Otter L.	55°35′N; 104°46′W
Otter Rapids	55°38′N; 104°44′W
Pita L.	55°29–36′N; 102°43–46′W
Sandy Bay	55°33′N; 102°18′W
Sokatisewin L.	55°27–30′N; 102°23–28′W
Trade L.	55°20½–24′N; 103°40–49′W
Wapumon L.	55°35–36′N; 102°56′W
Wintego L.	55°32–33′N; 102°52–55′W
Cluff L.	58°19½–22′N; 109°31′–35½′W
Clut L.	59°24′N; 105°48′W
Cumberland House	53°57′N; 102°15′W

Table 1 (continued)

Duck Mtn.: Madge L.	51°35′N; 101°00′W
Garthland, 5 mi. NNW	52°58′N; 106°28′W
Green L.	54°17′N; 107°47′W
Greenwater L.	52°30′N; 103°31′W
Highway 102 (La Ronge — Southend Road):	
Bervin L.	55°47′N; 104°33′W
Brabant L.	56°00′N; 103°43′W
Dickens L.	55°45′N; 104°40′W
Jaysmith L.	55°59′N; 104°07′W
Jct. with Hwy. 105	56°15′N; 103°30′W
Lynx L.	55°21′N; 104°58′W
McKay L.	55°27′N; 104°56′W
McLennan	55°53′N; 104°22′W
Wierzycki L.	56°01′N; 103°56′W
Highway 105 (Wollaston L. Road):	
Atwater L.	56°48′N; 103°37′W
Bothwell L.	57°03′N; 103°36′W
Courtenay L.	57°24′N; 103°58′W
David L.	56°38′N; 103°33′W
Davin L.	56°50′N; 103°40′W
Geikie R. Crossing	57°41½′N; 103°59½′W
Peter L.	57°15′N; 103°53′W
Swift Cr. of Lightning Bolt	56°34′N; 103°34′W
Wathaman R.	57°06′N; 103°43′W
Island Falls	55°32′N; 102°23′W
Island L.	58°21′N; 109°33′W
Jan L.	54°56′N; 102°55′W
Lac la Plonge: Weber Bay	55°10′N; 107°27′W
Lac la Ronge:	
English Bay	55°13′N; 105°17′W
La Ronge	55°06′N; 105°17′W
Nemeiben Cr.	55°17′N; 105°10′W
Waden Bay	55°17′N; 105°05′W
La Loche	56°29′N; 109°26′W
Leaf Rapids	54°50′N; 102°38′W
Little Amyot L.	55°11′N; 107°50′W
Little Bear L.	54°20′N; 104°35′W
Limestone L.	54°38′N; 103°13′W
MacDonald Cr., of MacDonald L.	57°12′N; 105°35′W
MacDowall, 5 mi. SSW	52°57′N; 106°05′W
Macoun L.	56°32′N; 103°50′W

Table 1 (continued)

Meadow L. Prov. Pk.:	
Greig L.	54°27′N; 108°41½′W
Kimball L.	54°24′N; 108°48½′W
1st Mustus L.	54°27½′N; 108°48½′W
2nd Mustus L.	54°25½′N; 108°58½′W
3rd Mustus L.	54°26′N; 108°54′W
Methy Portage	56°38′N; 109°45′W
Mirond L.	55°00–13′N; 102°48½–103°07′W
Nipawin Prov. Pk.: Lower Fishing L.	54°02′N; 104°38′W
Pasquia Hills	53°07–14′N; 102°24–41′W
Pelican Narrows	55°10′N; 102°56′W
Porcupine Hills, 14 mi. S of Armit	52°38′N; 101°48′W
Reindeer R.:	
Atik Falls	55°36′N; 103°11′W
Devil L.	55°40′N; 104°45′W
Devil Rapids	56°12′N; 103°10′W
McDonald Cr.	56°02–04′N; 103°02–05′W
Royal L.	56°01½′N; 103°06′W
Steephill L.	55°55–59′N; 103°04–11′W
Steephill Rapids	55°56½′N; 103°17′W
The Two Rivers	55°45–47′N; 103°07–10′W
White L.	56°00′N; 103°16′W
Reindeer L.:	
N end at D.T.R.R. Fisheries Camp	57°46′N; 102°06′W
Numabin Bay	56°18–26′N; 103°15–23′W
Southend	56°20′N; 103°12′W
Sandy Bay, at Nemei R.	55°29′N; 102°19′W
Taylor L.	56°03′N; 108°34′W
Turnor L.	56°28′N; 108°41′W
Waskesiu L. (in Pr. Albert Nat'l. Pk.)	53°54′–55°01′N; 106°04–26′W
Wheeler R., near Russell L.	57°22′N; 105°26′W
White Gull L.	53°56′N; 105°04′W
Wilson L.	57°17′N; 105°33′W
Wollaston L.:	
Collins Bay	58°14½–16½′N; 102°38–41′W
Hidden Bay	58°02½–07½′N; 103°41–47½′W
Minor Bay	57°56′N; 103°50′W
Nekweaga Bay	57°44–52½′N; 102°38–47½′W
Pow Bay	58°12½–14′N; 103°37–39′W
Rabbit L.	58°12′N; 103°43′W
Umpherville R.	58°06′N; 103°47′W

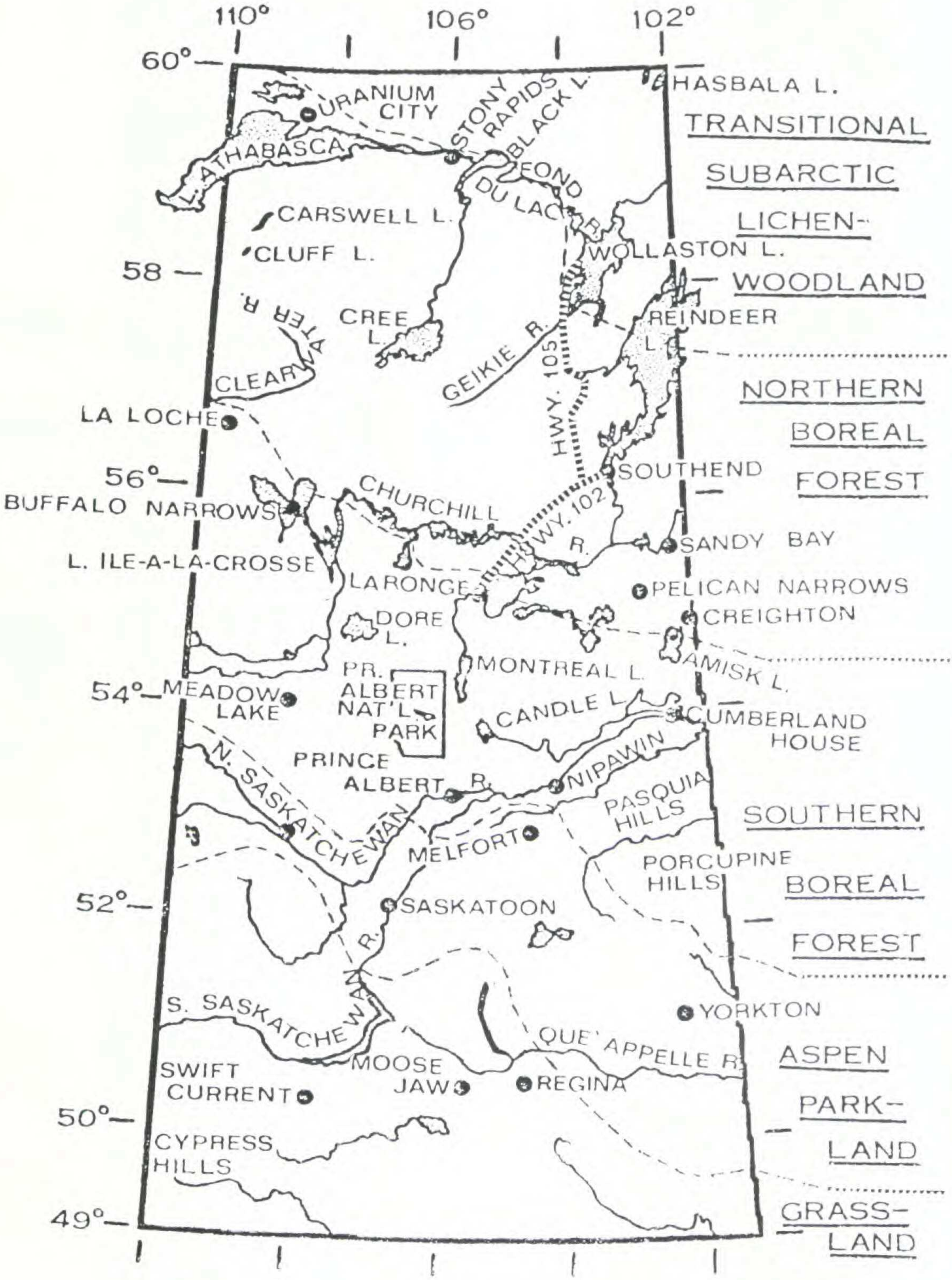

Figure 1. Map of Saskatchewan showing general vegetation zones, larger lakes and rivers, other important place names, and latitude longitude coordinates.

LYCOPODIACEAE

Lycopodium inundatum L.

Cluff L., very wet open fen, *Hudson & Polson 3698*. Previously recorded in Saskatchewan only from Windrum L. (Boivin, 1967b).

Lycopodium sitchense Rupr. [*L. sabinaefolium* Willd. var. *sitchense* (Rupr.) Fern.].

Cluff L., mesic black spruce-jack pine forest, *Hudson & Polson 3675*. An apparently rare species previously reported in the province only from Portage La Loche (= Methy Portage; Macoun, 1890), the L. Athabasca S shore (Raup, 1936), and Hasbala L. (Argus, 1966).

Lycopodium selago L.

SW end of Hidden Bay of Wollaston L., rare on dense moss in white birch-black spruce-river alder gallery mixedwoods, *Harms 22160*. 2 mi. W of Southend, near Numabin Bay of Reindeer L., jack pine-lichen forest with rock outcrops, *Ternier & Lamont 533*. This arctic-subarctic clubmoss seems rare in Saskatchewan, where it was previously reported only in the northernmost part of the province (L. Athabasca, Raup, 1936; Hasbala L., Argus, 1966). The present collections multiply the number of known localities for it and extend the known range of the species in Saskatchewan southward nearly 200 miles. Thus, this clubmoss is not strictly subarctic in the province but apparently occurs at least sporadically in the northern boreal forest region as well.

ISOETACEAE

Isoetes echinospora Dur. var. **braunii** (Dur.) Engelm. [*I. braunii* Dur.; *I. muricata* Dur. var. *braunii* (Dur.) Reed].

Cluff L., *Hudson & Polson 3668;* Hidden Bay of Wollaston L., *Harms 21687, 21815 & 22089;* Collins Bay of Wollaston L., *Harms 21959;* NE arm of Davin L., *Harms 22553;* Little Bear L., *Harms 20235B*. The plants were relatively frequent and often locally abundant on the lake bottom at 0.5–1.5 m below the water surface. The species had been considered uncommon in the province. Previous reports from Saskatchewan include: Creighton (Breitung, 1957), Hasbala-Patterson L. area (Argus, 1966), Little Gull L. on the S shore of L. Athabasca (Argus, 1968), and the following localities along the Hanson Lake Road: Limestone L., Jan L., Kistapisken L., and Sturgeon-Weir R. (Argus, 1968; the latter as *I. muricata* var. *hesperia* Reed). Although Argus (1968) stated that the

species was widespread throughout Saskatchewan on the Precambrian Shield, evidence of this from available collections was then lacking for the region between the far northern stations and sites along the Hanson Lake Road at the southern edge of the shield.

OPHIOGLOSSACEAE

Botrychium matricariifolium Braun [includ. ssp. *hesperium* Maxon & Clausen].

Between Davin L. & Bothwell L., uncommon at edge of shallow pool in esker valley, *Ternier & Jasieniuk 1747;* Pita L. on Churchill R., rare on rock outcrops, *Heilman 2227.* Breitung (1957) reported this species in Saskatchewan from the Cypress Hills, Mortlach, Amisk L., and Beechy. Additional herbarium specimens have been seen from near Fox Valley (*Ledingham & Jones 5676,* USAS). The present records amplify the few previous ones for Saskatchewan, extending about 150 miles northward the known range of this species. Surprisingly, while this grape-fern is now known in Saskatchewan from the Cypress Hills forest, mixed grassland, and northern boreal forest zones, it has not yet been recorded from either the aspen parkland or the southern boreal forest zones. It remains uncertain whether this apparent gap is a collecting artifact.

Botrychium multifidum (Gmel.) Rupr. [includ. var. *multifidum* and var. *intermedium* (D.C. Eaton) Farw.].

Cluff Lake, mesic black spruce-jack pine forest, *Hudson & Polson 3704;* McDonald Cr. of Reindeer R., rare on creek banks, *Heilman 2556;* Churchill R., at Trade L., rare on exposed beach point, *Heilman 2353.* Generally considered a rare and sporadically occurring, although quite widespread, species, it was previously known from Big River, McKague, Saskatoon (Breitung, 1957), Cypress Hills (*Newsome 528–62*), Lac Ile-a-la-Crosse (Harms, 1974), Amisk L. (*Hudson 1571,* JHH), and Mortlach (*Hudson 1902,* DAO).

Botrychium virginianum (L.) Sw. [includ. var. *europaeum* Angstr.].

Cluff L. area: Germaine L., rare on wet mossy shore, *Harms, Skoglund & Wright 24272.* This most commonly encountered grape-fern in Saskatchewan is characteristic of the aspen parkland and southernmost boreal forest zones, but was previously recorded

from no farther north in the province than Meadow L. Prov. Park, Waskesiu L., and Candle L. The present Cluff L. collection appears to be the first from the northern half of Saskatchewan and represents an over 250-mile northward range extension. However, since this species has been reported from Keewatin and Mackenzie Districts, N.W.T. (Boivin, 1967b), its occurrence at least sporadically throughout northern Saskatchewan is expected. The fronds of the Cluff L. specimens were unusually small-sized even for the smaller var. *europaeum*. Most Saskatchewan specimens, however, do not appear readily separable into the usually recognized varieties.

POLYPODIACEAE

Gymnocarpium robertianum (Hoffm.) Newm. [*Dryopteris robertianum* (Hoffm.) C. Chr; *Phegopteris robertianum* (Hoffm.) A. Br.].

Ca. 5 mi. N of La Ronge, vertical rock outcrop face, *Harms 21134;* Midway L., 8.5 mi. N of La Ronge, rock outcrop cliff side, *Ternier & Lamont 114;* Reindeer R., midway between Steephill L. and The Two Rivers, occasional on rock cliff, *Heilman 1539;* near David L., common on rock outcrops, *Ternier & Jasieniuk 1971;* 1.5 mi. S of Bothwell L., uncommon on rock outcrops, *Ternier & Jasieniuk 1783;* N side of Wathaman L., uncommon on rock outcrops in jack pine forest, *Ternier & Jasieniuk 1683;* 7.5 mi. S of Geikie Crossing, SW end of Wollaston L., uncommon on rocky slope in mixed forest, *Ternier & Jasieniuk 2418*. A rarely collected plant in Saskatchewan, where it was previously reported only from L. Athabasca (Raup, 1936) and the Hasbala-Patterson L. area (Argus, 1966). Herbarium specimens have also been seen from Limestone L. (mossy limestone outcrops, lake shore, *Argus & Hudson 4575*) and from Clut L. (*Campbell 3 Aug. 1935*). The present locality records suggest that this fern is much more widespread and frequent in the province than was once believed, at least on the metamorphic rocks of the Precambrian Shield in eastern boreal Saskatchewan. It appears both morphologically and ecologically distinct from the similar *G. dryopteris* (L.) Newm., and we cannot concur with Boivin (1967b) who considered the two species conspecific.

Matteuccia struthiopteris (L.) Todaro var. **pensylvanica** (Willd.) Morton [*Onoclea struthiopteris* (L.) Fern. var. *pensylvanica* (Willd.) Boivin].

About 15 mi. W of Numabin Bay of Reindeer L., birch-alder woods along stream, *Ternier & Jasieniuk 2097;* Courtenay L., alder-birch woods, *Ternier & Jasieniuk 1476.* Conspicuous, frequent and often locally abundant in the southern boreal forest and aspen parkland zones of Saskatchewan, this fern was not recorded previously from the northern half of the province. The present records represent northward range extensions.

Thelypteris phegopteris (L.) Slosson [*Dryopteris phegopteris* (L.) Christensen; *Phegopteris polypodioides* (L.) Fee].

5 mi. S of Geikie R. Crossing, moist gallery birch woods, *Ternier & Jasieniuk 2353;* Geikie R., rocky creek in boggy marsh, *Ternier & Jasieniuk 2543;* Hidden Bay of Wollaston L., moist lush white birch-black spruce-river alder gallery mixed woods, *Harms 21604, Harms & Wright 23756.* This species was previously recorded in Saskatchewan by Raup (1936) from Axis L. at the E end of L. Athabasca and by Breitung (1957) from Clut L. and Porter L. (E. of Frobisher L.). However, the voucher specimens for the latter citations, which were reportedly filed in the Fraser Herbarium, have not been located. Thus Boivin (1967) listed only Axis L. as a verified locality for the Saskatchewan distribution of this species, and further cited only a single locality in each of the neighboring provinces. More recently, Looman (1973) reported its discovery at McLennan L., a locality where it also had been found previously by us (*Ternier & Lamont 1111*). The present Geikie R.-Wollaston L. collections add substantially to the known distribution of this fern in Saskatchewan and western Canada. Its occurrence should be expected elsewhere in the northern boreal forest region on the Precambrian Shield of especially northeastern Saskatchewan. Based upon the known Saskatchewan distribution, it might also be expected in southern Keewatin or southeastern Mackenzie Districts, N.W.T., where neither Boivin (1967) nor Porsild & Cody (1968) recorded it.

NAJADACEAE

Potamogeton amplifolius Tuckerm.

Churchill R., W side of Sokatisewin L., flooded inlet, water depth ½ m, *Heilman 1700.* Breitung (1957) cited this species from Waskesiu L. based upon a collection filed in the Fraser Herbarium that has since been revised. Boivin (1966–67) listed Saskatchewan

only parenthetically, indicating that he had not verified any Saskatchewan reports. Unfortunately, our specimens are sterile, but their identification based on foliage characters seems quite certain.

Potamogeton epihydrus Raf.

Churchill R., Keg L., *Polson 6 & 14;* Ca. 5 mi. W of Reindeer R. & 5 mi. N of White L., *Heilman 2478;* Reindeer R., between Steephill L. & Royal L., *Heilman 2427;* Jaysmith L., *Ternier & Jasieniuk 2576;* 7½ mi. S-SE of La Loche, *Harms & Skoglund 19679;* Dickens L., *Ternier & Lamont 1326;* McKay L., *Ternier & Jasieniuk 2725;* 12 mi. W of Numabin Bay of Reindeer L., *Harms 22638, Ternier & Jasieniuk 2244;* Atwater L., *Ternier & Jasieniuk 1835;* Peter L., *Ternier & Jasieniuk 2308, 2309;* Geikie R. Crossing, *Ternier & Jasieniuk 2479, 2549;* Cluff L. area: Snake L., *Hudson & Polson 3683.* An often abundant aquatic in shallow quiet water of lakes, ponds, creeks, marshes and very wet sedge fens. This species was first recorded for Saskatchewan from Denare Beach, Amisk L. (*Hudson 1735,* DAO). However, it was not listed for Saskatchewan by Fraser & Russell (1944 & 1953) nor Breitung (1957). Boivin (1966–67) included Saskatchewan at the western limit of its eastern Canadian range from New Brunswick, presumably on the basis of the Amisk L. collection. To our knowledge, the new records represent the only subsequent collections of this species in the province. Although formerly thought to be rare in Saskatchewan because of the dearth of collections, this pondweed now appears likely to be common in the northern boreal forest zone.

Potamogeton natans L.

Alcott Cr., 26 mi. N of Glaslyn, *Hudson 3660;* Meadow L. Prov. Park, N shore of Kimball L., *Harms 20627;* McKay L., *Ternier & Jasieniuk 2710;* Bervin L., *Ternier & Lamont 1161;* Jaysmith L., *Ternier & Jasieniuk 2581;* McDonald Cr. of Reindeer R., *Heilman 2397b;* Garvin Bay of Steephill L. on Reindeer R., *Heilman 2436;* Cluff L. area, Claude L., *Hudson & Polson 3718.* The plants occurred in shallow water marshes along shores of protected lake bays and sluggish streams. Breitung (1957) reported the species from only Prince Albert Nat'l. Park and McKague; Jeglum (1972) from Candle L.; and Harms (1974) from Lac la Plonge and Turnor L. There are also specimens of this species in the Fraser Herbarium from Cumberland House (*Argus 4029, Dabbs 89-66*), Sled I.

(*Caldwell, 19 July 1963*), and Big Sandy L. (*Hudson & Argus 4535-6, 4540*). The present records extend its known Saskatchewan range considerably northward.

Potamogeton obtusifolius Mert. & Koch.

Ca. 5 mi. W of Reindeer R. & 5 mi. N of White L., in fen pond, *Heilman 2515;* Devil L., 1.5 mi. N of Otter Rapids, rock outcrop shore, *Ternier & Jasieniuk 2626;* Ballantyne Bay of Deschambault L., ½-1 m water, *Harms 22960.* The only previous records for this apparently rare aquatic in Saskatchewan are from L. Athabasca (Raup, 1936; Breitung, 1957), Candle L. (Jeglum, 1972), and Amisk L. (*Hudson 1550*). Presumably this pondweed is scarce throughout the western Canadian provinces.

Potamogeton pusillus L. [including *P. berchtoldii* Fieber].

Devil L., *Ternier & Jasieniuk 2626;* Trade L. on Churchill R., *Ternier & Jasieniuk 2590 & 2594;* Wintego L. on Churchill R., *Heilman 1947 & 2065;* McDonald Cr. on Reindeer R., *Heilman 2396 & 2450.* Cluff L. area: Douglas R., *Hudson & Polson 3713.* The plants were frequent and often abundant in sedge fen ponds and shallow water marshes of protected lake bays and sluggish streams. Previously thought to be infrequent in Saskatchewan where it was recorded from the L. Athabasca region (Raup, 1936), Spur Creek (sic) and Fort Carleton (Breitung, 1957), Candle L. (Jeglum, 1972), and from Little Amyot L. and Lac Ile-a-la-Crosse (Harms, 1974). In addition, we have verified specimens in the Fraser Herbarium from Amisk L. (*Hudson 1550*), Carnduff (*Bolton 8*), Prince Albert (*Furniss, 5 Aug. 1936*), Melfort (Millar 65-252), Cadillac (*Garton 13454*), and Saskatoon (*Coupland & Middleton 462; Millar 65-275*). This pondweed is now known to occur throughout the parkland and southern boreal forest regions of Saskatchewan.

Potamogeton robbinsii Oakes.

Cluff L.: Sandy L. north of Douglas R., aquatic, *Hudson & Polson 3714, Polson et al 26-7-78.* Apparently rare in Saskatchewan where it has previously been recorded only from Nemeiben L. (Caldwell, 1960) and Limestone L. (*Hudson & Argus 4579*).

Potamogeton zosteriformis Fern.

Otter L. at Missinipe, aquatic in ½-2 m water depths, *Ternier & Jasieniuk 2667;* Devil L., aquatic in water ½-1½ m deep near shores

of protected bays and inlets, *Ternier & Jasieniuk 2634;* Churchill R., between Keg Falls and Grand Rapids, aquatic, *Polson 62;* Trade L. on Churchill R., aquatic in 2–5 m water depths in protected bay, *Heilman 2582;* Ray Bay of Wintego L. on Churchill R., small creek entering bay, *Heilman 1960b & 2063;* Sokatisewin L. on Churchill R., aquatic in flooded inlet, Heilman *1702.* Breitung (1957) reported this species from Pike L. and Waskesiu L. It was recorded by Jeglum (1972) from Candle L. and by Harms (1974) from the Canoe R. There also are specimens in the Fraser Herbarium from the Cumberland House vicinity (*Argus 4030B & 4066*), Limestone L. (*Argus & Hudson 4585*), Big Sandy L. (*Hudson & Argus 4543*), Lower Fishing L. in Nipawin Prov. Park (*Argus & Hudson 4408 & 4452*), Dore L. (*Caldwell July 1963*), Sled L. (*Caldwell July 1963*), Beaupre L. (*Caldwell, 17 July 1963*), Waterhen R. in Meadow L. Prov. Park (*Hudson 2430*), and Melfort (*Millar 63-64*). This pondweed may be more frequent in the aspen parkland and southern boreal forest regions of Saskatchewan than once thought.

SCHEUCHZERIACEAE

Scheuchzeria palustris L. var. **americana** Fern.

Ca. 12 mi. W of Numabin Bay of Reindeer L., wet sedge bog, *Ternier & Jasieniuk 2220;* Ca. 10 mi. E of Macoun L., wet sedge bog, *Ternier & Jasieniuk 2085;* David L., wet semi-treed bog, *Ternier & Jasieniuk 1978;* Peter L., wet sedge bog, *Ternier & Jasieniuk 1555;* 7.5 mi. S of Geikie R. Crossing, wet boggy sedge area, *Ternier & Jasieniuk 2428;* Cluff L., very wet open fens, *Hudson & Polson 3697;* Wheeler R. near Russell L., wet *Carex-Sphagnum* fen, *Godwin, Aug. 1978.* Recorded previously from only L. Athabasca (Raup, 1936), Prince Albert Nat'l. Park (Breitung, 1957), Candle L. (Jeglum, 1972), Little Amyot L. (Harms, 1974), and the Cumberland House area (*Dirschl & Dabbs 210-62,* SASK), the present records indicate a more widespread occurrence in the province for this species than was formerly realized.

POACEAE

Calamagrostis lapponica (Wahl.) Hartm.

Cluff L. area, semi-stabilized disturbance and natural sandy clearings, open mossy shores, and "drier" treed bogs, *Harms 23813 & 23957; Harms, Skoglund & Wright 24230, 24396 & 24297.* This primarily arctic species was only recently reported by us (Harms &

Hudson, 1974) as new to Saskatchewan, based on collections from William River, S of L. Athabasca and the La Loche area. Thus the present collections document the third locality in Saskatchewan, lessening somewhat the distributional gap between the previous records. The three stations are all located on the western edge of the province north of 56° latitude.

Calamagrostis purpurascens R. Br.

Cluff L. area: 1.5 mi. W of Island L., thin soil in open dolomite outcrop areas, *Harms 23896 & 23942; Harms, Skoglund & Wright 24422 & 24428*. This rarely collected arctic species has been recorded elsewhere in Saskatchewan only from the N shore of L. Athabasca (Raup, 1936), Dodge L. (Scotter, 1961), Carswell L. (Argus, 1964), and the Hasbala L. area (Argus, 1966). In northwestern Saskatchewan it is known only from dolomitic sites.

Festuca brachyphylla Schultes [*F. ovina* var. *brachyphylla* (Schultes) Piper].

Cluff L., natural sand-blowout clearing, *Harms 24332*. We have also revised to this species the following collection in the Fraser Herbarium: Stony Rapids, N of Fond-du-Lac R., open aspen stand, *Maini & Swan 517*. An apparently rare arctic species in Saskatchewan, it is recorded elsewhere only from rock crevices on the N shore of L. Athabasca (Raup, 1936).

Poa alpigena (Fr.) Lindm. [*P. pratensis* L. var. *alpigena* Fries].

Meadow L. Prov. Park, E side of Kimball L., *Harms 20479;* La Ronge, *Harms 21034;* 3 mi. N of La Ronge, *Ternier & Lamont 488;* Wierzycki L., *Ternier & Lamont 1029;* near Southend, Numabin Bay of Reindeer L., *Harms 22715;* ca. 10 mi. E of Macoun L., *Harms 22635;* Huggins L. outlet to Minor Bay of Wollaston L., *Harms 22176;* NE end of Cluff L., *Harms 24154*. At these places the plants occurred either on dry open stream shores or in disturbed clearings. The species was not included for Saskatchewan by Fraser & Russell (1937 & 1954) or Breitung (1957), and Boivin (1966–67) listed both Saskatchewan and Manitoba in parentheses to indicate the existence of reports not verified by him. Harms (1974) recorded it from Green L., Little Amyot L. and La Loche. An additional specimen of this species has been identified in the Fraser Herbarium (cleared forest, N end of Cree L., *Maini 78*). Possibly overlooked or not usually distinguished from the more common *P. pratensis* L. in Saskatchewan.

Poa nemoralis L.

Mirond L., open jack pine woods, *Harms 23076;* Opawikusehikan Narrows, 3 mi S of Pelican Narrows, dry roadside, *Harms 20128;* English Bay of Lac la Ronge, lake shore sedge meadow, *Harms 21255.* This species was listed by Fraser & Russell (1954) for the eastern mixed prairie and aspen parkland regions of Saskatchewan but without citation of any specific localities. Breitung (1957), who probably included the species under *P. palustris* L., did not list it. Boivin (1966–67) included Saskatchewan within its range. It was recorded by Harms (1974) from Green and Taylor Lakes. In the McFraser Herbarium there also are Breitung collections from McKague, Wallwort, and Golburn, as well as a specimen from 5 mi. S of Candle L. (wet-mesic balsam poplar-black spruce forest, *Swan 65-35*). A grass probably not rare in Saskatchewan but perhaps overlooked or not usually distinguished from the more common *P. palustris.*

Torreyochloa pallida (Torr.) Church [*Glyceria pallida* (Torr.) Trin.; *Puccinellia pallida* (Torr.) Clausen].

3 mi. SW of Otter L. of Churchill R., emergent in small marshy creek pond, *Harms 22735;* McDonald Cr. of Reindeer R., aquatic in shallow marsh delta wetlands, *Heilman 2472, Polson 103;* ca. 5 mi. W of Reindeer R. & 5 mi. N of White L., shore sedge fen along creek, *Heilman 2499;* Northern Reindeer L., D.T.R.R. Fishing Camp, *Polson 96.* This, a presumably rare species in Saskatchewan, was first reported for the province by Argus (1968) from Stony Rapids and from Yakow L. at the SE end of L. Athabasca. A grass found mostly in more eastern North America, it is known otherwise in western Canada from several disjunct sites in northern Alberta and British Columbia.

Trisetum spicatum (L.) Richt. var. **molle** (Michx.) Beal.

Cluff L., open dolomite outcrops, *Abouguendia 7-8-78.* Previously recorded in Saskatchewan from the Cypress Hills (Breitung, 1954 & 1957), and the far north at L. Athabasca (Raup, 1936) and Hasbala L. (Argus, 1966).

CYPERACEAE

Carex abdita Bicknell.

W side of Trade L. on Churchill R., rock outcrops, *Heilman 2645;* S end of Sokatisewin L., on Churchill R., rock outcrops in pine

forest, *Heilman 1804, 1805;* near Steephill L. on Reindeer R., rock outcrops, *Heilman 2374;* Reindeer R., below Steephill Rapids, rock outcrops in open jack pine forest, *Heilman 1425;* near David L., dry rocky creek bed, *Ternier & Jasieniuk 1944.* Cluff L. area: Snake L., sandy disturbed clearing in jack pine forest, *Harms, Skoglund & Wright 24542C.* Although this sedge was once considered rare in Saskatchewan, known only from Hasbala L. (Argus, 1966), L. Athabasca (*Ledingham 3346 & 3365,* USAS) and Lac la Ronge (*Ledingham 48-280 & 49-331,*USAS), the present records show that it occurs across the boreal forest zone. The distribution of this and other *Carex* species in Saskatchewan is mapped by Hudson (1977).

Carex concinna R. Br.

Cluff L. area: W of Island L., frequent on dolomite cliffs, *Harms, Skoglund & Wright 24455A.* This species, which is characteristic of the aspen parkland and more southern boreal forest regions of the province, is disjunct in northwestern Saskatchewan, where it has been recorded from the N shore of L. Athabasca (Raup, 1936) and the Cluff L. area. This apparent disjunction may be artificial due to inadequate collecting in western boreal Saskatchewan.

Carex eburnea Boott.

Cluff L. area: 1.5 mi. W of Island L., dolomite cliffs, *Harms 23897 & 23902; Harms, Skoglund & Wright 24427.* A rare calciphile in Saskatchewan, this sedge grows mainly in the valleys of the N. and S. Saskatchewan and Qu'Appelle Rivers in the grassland and aspen parkland zones. It is disjunct in northwestern Saskatchewan, where it has been recorded from the N shore of L. Athabasca (Raup, 1936), Carswell L. (Argus, 1964), and Cluff L. This gap in range is likely due to the rarity of suitable calcareous sites in the intervening boreal forest region.

Carex garberi Fern.

Missinipe, forest trailside, *Ternier & Lamont 297;* Cluff L., semi-open shrub shores, *Harms, Skoglund & Wright 24177 & 24212.* These reports, the first records from the mid-boreal forest and from northwestern Saskatchewan, are for a sedge that was known previously from only about five places in southern Saskatchewan and from Hasbala L. in the NE corner of the province.

Carex houghtonii Torr.

Atwater L., roadside, *Ternier & Jasieniuk 1884;* SE end of

Nekweaga Bay of Wollaston L., shrubby streambank, *Harms 22375.* Cluff L. area: 1.5 mi. N of Island L., semi-open jack pine woods & trailside, *Harms 23987;* NW of Snake Lake, *Harms, Skoglund & Wright 24536A.* These records represent an approximately 100-mile northward range extension of the species in Saskatchewan.

Carex lanuginosa Michx.

Cluff L. area, 1.5 miles N of Island L., "drier" open bogs and jack pine forest clearings, *Harms, Skoglund & Wright 24371 & 24405B.* For a sedge known mainly in the grassland and aspen parkland zones, with a few scattered records northward into the southern boreal forest, but none from north of 55° latitude, the Cluff Lake collection represents a 230-mile northward range extension in Saskatchewan.

Carex lenticularis Michx.

Collins Bay of Wollaston L., moist shrub shore, *Harms 21928;* Hidden Bay of Wollaston L., frequent on moist open and shrub shores, *Harms 21610, 21802-3, & 21882;* Royal L. on Reindeer R., mud-boulder beach, *Heilman 2465;* McLennan L., wet sandy lake shore, *Ternier & Lamont 1093.* Previously, this species was recorded in Saskatchewan only from L. Athabasca (Raup, 1936), Lac la Ronge, (Breitung, 1957), Reeves L. NW of Black L. (*Campbell, 12 July 1936,* CAN) and Amisk L. (*Hudson 1513,* DAO). Our present records indicate a greater frequency for the species in boreal Saskatchewan than formerly believed.

Carex leptalea Wahl.

Campbell Is. in Sokatisewin L. on Churchill R., sedge fens, *Heilman 1838;* ca. 15 mi. W of Southend, Numabin Bay of Reindeer L., moist disturbance areas, *Ternier & Jasieniuk 2188;* about 12 mi. W of Numabin Bay of Reindeer L., swamp horsetail marsh, *Ternier & Jasieniuk 2232;* Wathaman R., moist mixedwoods, *Ternier & Jasieniuk 1666, 1777;* N of Geikie R., boggy creek shore, *Ternier & Jasieniuk 2544;* Cluff L. area, moist gallery mixedwoods, lake shores, and natural sand-blowout clearings, *Harms, Skoglund & Wright 24208, 24304, & 24334B.* These collections narrow the apparently wide gap between the species' previously known occurrence in the aspen parkland and southernmost boreal forest region (north only to Waskesiu L. and Candle L. at ca. 54° N lat.) and far northern Saskatchewan [L. Athabasca (Raup, 1936), Carswell L. (Argus, 1964), Hasbala L. (Argus, 1966)].

Carex livida (Wahl.) Willd.

7 mi. S of Geikie R., wet sedge fen, *Ternier & Jasieniuk 2427;* Courtenay L., boggy lake shore, *Ternier & Jasieniuk 1529;* ca. 12 mi. W of Numabin Bay of Reindeer L., wet marsh, *Ternier & Jasieniuk 2238.* These records partly fill a previous gap in the range of this infrequently collected species between its main area of occurrence in the aspen parkland and southern boreal forest, and the far northern records at Hasbala L. (Argus, 1966) and L. Athabasca (S shore E of William R., *Argus 337-62,* distributed as *C. limosa* L.).

Carex loliacea L.

Geikie R., SW of Wollaston L., moist black spruce willow bog, *Ternier & Jasieniuk 2522;* Courtenay L., birch woods along creek, *Ternier & Jasieniuk 1517;* Atwater L., birch woods along stream, *Ternier & Jasieniuk 1869;* ca. 12 mi. W of Numabin Bay of Reindeer L., wet black spruce-tamarack treed bog, *Ternier & Jasieniuk 2296;* Wapumon L. on Churchill R., wet forest along stream, *Heilman 1990;* Pita L. on Churchill R., creek bank, *Heilman 2193;* Lynx L., willow marsh, *Ternier & Lamont 412A, 421 & 427.* This subarctic sedge of wet habitats, formerly thought to be rare in Saskatchewan, was known only from the northernmost region of the province at L. Athabasca (Raup, 1936), Oblate L. and Faraud L. N of Black L. (Scotter, 1961), and Patterson L. (Argus, 1966), except for a collection (*Ledingham 49-337,* USAS, DAO) from Lac la Ronge (Breitung, 1957) and a more recent one from the Porcupine Hills (Hudson, 1974). The presently cited collections suggest a more or less continuous boreal distribution for this sedge at least in eastern Saskatchewan.

Carex michauxiana Boeckl.

Ca. 12 mi. W of Numabin Bay of Reindeer L., wet marsh, *Ternier & Jasieniuk 2237.* A species of eastern Asia and eastern North America first discovered in Saskatchewan by Argus (1968) on the S shore of L. Athabasca. The present collection represents only the second record for Saskatchewan and apparently also for the western Canadian provinces, since Boivin (1966–1967) did not report it from west of Ontario.

Carex oligosperma Michx.

Cluff L., very wet open fens, *Hudson & Polson 3690;* Collins Bay of Wollaston L., dominant in wet sedge pond fen, *Harms 21998;* 7.5

mi. S of Geikie R. Bridge, boggy sedge area, *Ternier & Jasieniuk 2421;* Peter L., wet sedge bog, *Ternier & Jasieniuk 1553;* David L., wet black spruce-tamarack bog, *Ternier & Jasieniuk 1977;* ca. 12 mi. W of Numabin Bay of Reindeer L., "boggy" sedge area, *Ternier & Jasieniuk 2212, Harms 22641.* These include the first records from northeastern Saskatchewan. It is otherwise known in Saskatchewan from Methy Portage (Breitung, 1957), the S side of L. Athabasca (Raup, 1936; Argus, 1968), and Buffalo Narrows (*B. Nelson S58044,* SASKP).

Carex pauciflora Lightf.

Ca. 13 mi. W of Numabin Bay of Reindeer L., open sedge bog, *Ternier & Jasieniuk 2199 & 2215;* Courtenay L., moist tamarack bog, *Ternier & Jasieniuk 1532;* Cluff L. area. 1½ mi. N of Island L., *Harms, Skoglund & Wright 24406.* This apparently rare species has been otherwise recorded in Saskatchewan from only three sites: L. Athabasca (Argus, 1968), Candle L. (Jeglum, 1972), and Porcupine Hills (Hudson, 1974).

Carex richardsonii R. Br.

W side of Sokatisewin L. on the Churchill R., aspen forest, *Heilman 1788;* Reindeer R. near The Two Rivers, aspen forest, *Heilman 1573;* 2 mi. below Steephill Rapids on Reindeer R., aspen forest, *Heilman 1523;* Cluff L. area, dolomite outcrops, cliffs, and disturbed area, *Harms 23814, 23927 & 23938.* These collections extend the known range of the species well north of the previous records from Amisk L., Candle L., Waskesiu L., and Nipawin Provincial Park, with the Cluff L. collections representing a 300-mile northwestward range extension.

Carex saxatilis L. [includ. var. *rhomalea* Fern.; var. *miliaris* (Michx.) Bailey; var. *major* Olney; ssp. *laxa* Kalela; & *C. physocarpa* Presl.].

Courtenay L., sedge meadow and wet shore, *Ternier & Jasieniuk 1501 & 1506.* Cluff L. area, trailside clearing near small stream, in jack pine forest, *Harms, Skoglund & Wright 24259.* This subarctic sedge was previously recorded in Saskatchewan only from the N shore of L. Athabasca (Raup, 1936) and Hasbala L. (Argus, 1966).

Carex trisperma Dewey.

Ca. 13 mi. W of Numabin Bay of Reindeer L., black spruce bog, *Ternier & Jasieniuk 2251.* This species was first reported for

Saskatchewan by Hooker (1829–1840), who cited a Drummond collection from Cumberland House. The species was erroneously reported by Breitung (1957) from Candle L. based upon specimens now revised to *C. brunnescens* (Pers.) Poir. Argus (1968) found it at Little Gull L. south of L. Athabasca.

Eleocharis nitida Fern.

Hidden Bay of Wollaston L., shallow mossy pool in black spruce forest, *Harms 21445;* ca. 12 mi. N of Geikie R., rocky stream edge, *Harms 22442;* Davin L., open bouldery stream edge, *Harms 22571;* near David L., rocky creek bed and open disturbance area, *Ternier & Jasieniuk 1942 & 1960;* Nemei R., at S end of Sandy Bay on Churchill R., 5 mi. S of Island Falls, moist sandy edge of black spruce woods, *Harms 20013B;* W of Reindeer R., 5 mi. N of White L., sedge fen-bog, *Heilman 2512.* This represents the second report for this apparently rare species in Saskatchewan. It was first recorded for the province by Argus (1968) based upon a collection from Stony Rapids. The species' occurrence in Saskatchewan is phytogeographically quite interesting, since this northern species had formerly been thought to be widely disjunct in North America (Newfoundland, New England, the Great Lakes area, and the Alaskan-British Columbia Pacific coast). However, the overall distribution of this species remains somewhat uncertain, because taxonomists have not always distinguished it from *E. elliptica* Kunth or from *E. tenuis* (Willd.) Schultes.

Rhynchospora alba (L.) Vahl.

Cluff L., wet open fen, *Hudson & Polson 3695.* Previous records from Saskatchewan include Dahlton, Prince Albert, Nipawin (Breitung, 1957), L. Athabasca S side at Little Gull L. (Argus, 1968), Wallwort (*Breitung, 1372*), and Garthland (*Hudson 3037 A,* JHH). The Saskatchewan range appears disjunct from the species' main eastern North American (Ontario and eastward) and Pacific Coast distributional areas.

Rhynchospora fusca (L.) Ait. f.

Cluff L., wet open fen, *Hudson & Polson 3692.* The first Saskatchewan record for this eastern bog plant, which was not previously reported from west of Ontario and southern Michigan.

Scirpus acutus Muhl.

Cluff L. area, Germaine L., shallow water to 5 dm depths, *Harms,*

Skoglund & Wright 24280. This collection probably represents the northernmost record in Saskatchewan. However, literature reports are untrustworthy in delineating the range of the species because of its frequent confusion with *S. validus.*

Scirpus fluviatilis (Torr.) A. Gray.

Churchill R., between Keg Falls and Grand Rapids, shallow marsh, *Polson 51;* Trade L. on Churchill R., shallow off-shore marshes, *Heilman 2576;* on Churchill R., Wintego L., shallow off-shore marsh, *Heilman 1946;* Elcott, marshy RR ditch, *Hudson 3644.* An infrequently collected, apparently rare species that was reported from only Pike L. and Indian Head (Breitung, 1957), although a specimen from Birch River S of Cumberland House (*Dabbs 112-66*) is also filed in the Fraser Herbarium. Our new collections extend the known range of the species over 100 miles northward to the eastern Churchill R. region. The few Saskatchewan stations for this bulrush are widely spaced.

Scirpus hudsonianus (Michx.) Fern. [*Eriophorum alpinum* L.].

Ca. 12 mi. W of Numabin Bay of Reindeer L., wet marshy *Carex-Lysimachia-Andromeda* bog, *Ternier & Jasieniuk 2221;* Cluff L., moist mossy shores and drying sandy stream bed, *Harms, Skoglund & Wright 24019 & 24293.* Infrequently collected and previously reported from L. Athabasca (Raup, 1936), Golburn, McKague, Nipawin, Peesane, Lac la Ronge (Breitung, 1957), Hasbala L. (Argus, 1966), and MacDowall (Hudson, 1971), our new records expand its area of known occurrence in the more northern boreal forest region of the province and suggest that it may be fairly widespread in northern Saskatchewan.

JUNCACEAE

Juncus longistylis Torr.

Cluff L., moist sandy "dry" stream bed, *Harms 24018.* This collection seems to represent an approximately 300-mile northward extension of range, since we are unaware of any previous records for it from north of the grassland and parkland regions of Saskatchewan where it is quite frequent.

Juncus stygius L. subsp. **americanus** (Buch.) Hult.

Ca. 12 mi. W of Numabin Bay of Reindeer L., wet open and treed bogs, *Ternier & Jasieniuk 2223 & 2225;* near David L., wet treed

bog, *Ternier & Jasieniuk 1979;* Cluff L., very wet open fen, *Hudson & Polson 3694;* S of MacDowall, wet open spots in marl bog, *Hudson 3069*. To our knowledge this rush was known previously in Saskatchewan only from the S side of L. Athabasca (Raup, 1936; Argus, 1968) and near Garthland (Hudson, 1976). The present records help narrow by at least 250 miles the apparent midcontinental gap between the known western and eastern North American stations.

Juncus tenuis Willd. var. **multicornis** E. Mey. [*J. macer* S. F. Gray].

Meadow L. Prov. Park, SW of Greig L., abandoned trail in aspen-pine woods, *Hudson 2410;* Nipawin Prov. Park, Lower Fishing L., trailside in black spruce forest, *Harms 22903;* English Bay of Lac la Ronge, disturbed trailsides, *Harms 21241;* Otter Rapids of Churchill R., disturbed roadside, *Ternier & Jasieniuk 2645;* McLennan L., disturbed roadside, *Ternier & Jasieniuk 1241;* S end of Sandy Bay of Churchill R., 5 mi. S of Island Falls, trailside in aspen woods, *Harms 23345.* Although probably not rare in Saskatchewan, this rush is infrequently collected. Breitung (1957) cited it only from Prince Albert Natl. Park and Montreal L. More recently Harms (1974) recorded it from Green L., Lac la Plonge and Taylor L. The present collections more than double the recorded stations for the species in Saskatchewan, while extending its known range in the province northeastward.

Luzula acuminata Raf. [*L. saltuensis* Fern.].

McDonald Cr. NE of Steephill L. on Reindeer R., sedge shore fens, *Heilman 2337, 2447;* Pasquia Hills, dry open pine-spruce forest, *Hudson 2896;* Porcupine Hills 14 mi. S of Armit, black spruce woods on high ground, *Hudson 2927.* The only previous report is from Meadow Lake (Breitung, 1957). Boivin (1966–67) included Saskatchewan within the Canadian range of this woodrush (i.e., Newfoundland to Alberta), although we do not know any basis for this other than the above-mentioned record by Breitung. In Alberta, it has been reported only from the Swan Hills by Packer & Dumais (1972).

Luzula parviflora (Ehrh.) Desv.

Brabant L., open roadside, *Ternier & Lamont 823;* Pasquia Hills, at Bankside L., *Felske & Pegg, 11 Aug. 1971;* Porcupine Hills, 14 mi. S of Armit, wet clearing in black spruce forest, *Hudson 2867.* To our knowledge, this species was previously recorded in Saskatche-

wan only from Candle L., Meadow L., Lac Ile-a-la-Crosse, and Lac la Ronge (Breitung, 1957), Hasbala L. (Argus, 1966), Taylor L. and La Loche (Harms, 1974), and Big Sandy L. (*Hudson & Argus 4459*). From the present records, it would appear quite widespread but sporadic, especially in the southern half of Saskatchewan's boreal forest.

POLYGONACEAE

Rumex orbiculatus A. Gray.

Inlet to Numabin Bay of Reindeer L., *Heilman 2767;* ca. 3.5 mi. N of Courtenay L., *Ternier & Jasieniuk 1435;* SW end of Hidden Bay of Wollaston L., *Harms 20893.* At each of these stations, the plants were shallow water emergents in wet sedge fens. These collections represent the northernmost records in Saskatchewan of a species formerly believed to be common only in the wetlands of the southern boreal forest region of the province. Making the new records somewhat less surprising is the recent report of this species from southern Mackenzie District, N.W.T., by Cody (1978).

CARYOPHYLLACEAE

Arenaria macrophylla Hook.

Near Jct. Hwys. 102 & 105, ca. 14–15 mi. W of Numabin Bay of Reindeer L., open aspen woods and open willow disturbed area, *Ternier & Lamont 702, Ternier & Jasieniuk 2182.* Previously known in Saskatchewan only from L. Athabasca (Raup, 1936) and Hasbala L. (Argus, 1966).

Arenaria rubella (Wahl.) J. E. Smith [*Minuartia rubella* (Wahl.) Graebn.].

Cluff L. area. 1½ mi. W of Island L., rare on dolomite cliff and outcrops, *Harms 23926B.* This arctic-subarctic and cordilleran species is known elsewhere in Saskatchewan only from the N shore of L. Athabasca (Raup, 1936) and the Cypress Hills (Breitung, 1954 & 1957).

NYMPHAEACEAE

Nymphaea tetragona Georgia ssp. **leibergii** (Morong) Porsild.

NW side of Peter L., *Ternier & Jasieniuk 2332;* Cluff L. area, Sandy L., *Hudson & Polson 3710.* At these places, the plants

occurred in shallow water (5–15 dm deep) of wave-sheltered lake edges and mouths of sluggish streams. Previously recorded from near Cumberland L. (Breitung, 1957), Hudson Bay Jct. (Kujt, 1959), S side of L. Athabasca (Argus, 1968), Candle L. (Jeglum, 1972), and Little Amyot L. (Harms, 1974). The new records amplify somewhat the known distribution of this rare species in Saskatchewan.

RANUNCULACEAE

Anemone parviflora Michx.

White Gull Creek near White Gull L., black spruce muskeg, *Anderson 1280;* Cluff L., moist jack pine burn, *Abouguendia 30-7-78.* This apparently rare species was previously recorded only in northernmost Saskatchewan from the N shore of L. Athabasca (Raup, 1936), Hasbala L. (Argus, 1966), and Carswell L. (Argus, 1964). The present White Gull L. collection represents a 300-mile southward extension of range in Saskatchewan. This suggests the possibility that the species might be expected almost anywhere in our boreal forest region. However, other subarctic species also appear disjunctly in the Candle Lake area and/or sometimes in the Pasquia and Porcupine Hills. Perhaps these represent isolated, relict populations of a subarctic element which once existed along the receding shores of post-glacial Lake Agassiz.

Coptis trifolia (L.) Salisb. [*C. groenlandica* (Oeder) Fern.].

David L., disturbance area, *Ternier & Jasieniuk 1959;* Atwater L., dry black spruce bog, *Ternier & Jasieniuk 1812;* Wathaman R., moist birch woods, *Ternier & Jasieniuk 1670;* Peter L., moist disturbance area with *Alnus* and *Myrica, Ternier & Jasieniuk 1575;* 15 mi. S of Geikie R. crossing, jack pine regrowth woods, *Ternier & Jasieniuk 1378;* W of Hidden Bay of Wollaston L., dry black spruce forest, *Harms & Wright 23727;* Cluff L. area, 1½ mi. N of Island L., "drier" treed bog, *Harms, Skoglund, & Wright 24403a.* This species, which is more characteristic of the aspen parkland and southern mixedwood section of the boreal forest, was previously known in more northern Saskatchewan from only Wolverine Pt. on the S shore of L. Athabasca (Raup, 1936) and Patterson L. in the northeastern corner of the province (Argus, 1966). The present records help to fill the northern boreal distributional gap which was formerly apparent in the province.

BRASSICACEAE

Draba lanceolata Royle.

Cluff L. area, W of Island L., dolomite cliffs, *Harms 23920; Harms, Skoglund & Wright 24434.* This represents the third station for this apparently rare calciphile in Saskatchewan. It is known elsewhere in the province only from dolomitic rock crevices N of L. Athabasca (Raup, 1936) and from a similar habitat at Carswell L. (Argus, 1964; reported as *D. cinerea* Adams, based on *Argus 596-62*, SASK).

Subularia aquatica L. ssp. **americana** Mull. & Cald.

English Bay of Lac la Ronge, *Harms 21295A;* ca. 3 mi. W of Southend, *Harms 22666;* Northern Reindeer L: D.T.R.R. Fisheries Camp, *Polson 120;* Hidden Bay of Wollaston L., *Harms 20857, 20940, 20957 & 21857;* Cluff L., *Hudson & Polson 3670.* The plants grew submerged on lake bottoms in relatively shallow water. Previously reported from only Amisk L. (Breitung, 1957) and near Stony Rapids (Argus, 1968). Of note was its surprising abundance at Hidden Bay of Wollaston L., where it represented a codominant lake bottom plant with *Eleocharis acicularis* var. *submersa* (Nils.) Svens. at depths of 0.5–1.5 m.

DROSERACEAE

Drosera anglica Huds.

Ca. 12 mi. W of Numabin Bay of Reindeer L., wet marsh, *Ternier & Jasieniuk 2239;* Courtenay L., "boggy" lake shore, *Ternier & Jasieniuk 1526;* 7.5 mi. S of Geikie R. crossing, wet sedge bog, *Ternier & Jasieniuk 2426;* Cluff L. area, N shore of Germaine L., emergent in mossy inlet spring, *Harms, Skoglund & Wright 24285;* 2 km E of Silver Grove, ca. 24 km S of Shellbrook, high-mineral spring area, *Cameron 553.* This sporadically occurring species has been considered rare in Saskatchewan, where it was known only from the southernmost boreal forest region at Prince Albert and McKague (Breitung, 1957), Big Sandy L. on the Hanson Lake Road (*Hudson & Argus 4515*), the MacDowall area (Hudson, 1976), L. Athabasca (Raup, 1936), and the Hasbala L. area (Argus, 1966). Very recently, it has also been found at two localities in the Qu'Appelle Valley. The present records amplify significantly the few known localities for the province.

SARRACENIACEAE

Sarracenia purpurea L.

Ca. 12 mi. W of Numabin Bay of Reindeer L., open bog, *Ternier & Jasieniuk 2219, Harms 22645;* ca. 10 mi. E of Macoun L., bog, *Ternier & Jasieniuk 2080;* Buffalo Narrows, boggy area, *Delanoy 62.* Also filed in the Fraser Herbarium are previously unreported northern Saskatchewan collections from bogs at Cree L. (Middleton Is., *Maini 39;* Lazy Edward Bay, *Maini 170*). Previously known from about a dozen different localities in the more southern boreal forest region of eastern Saskatchewan, the most northern of which were Candle L. and Amisk L.; also recorded from L. Athabasca by Raup (1936) and subsequent collectors. The present collections add some mid-boreal records and help to narrow somewhat the wide distributional gap formerly apparent in the province. This species is of sporadic occurrence in Saskatchewan but is usually locally abundant where found.

ROSACEAE

Potentilla pensylvanica L. var. **litoralis** (Rydb.) Boivin [*P. pectinata* Raf.].

Pita L. on Churchill R., open rock outcrops, *Heilman 2222;* N end of Methy Portage at Clearwater R., old campground on river floodplain, *Cameron 319.* In the Fraser Herbarium is another specimen from Saskatchewan (3 mi. N of Hudson Bay Jct., *Breitung 732*). This variety was reported by Breitung (1957 & 1959) from L. Athabasca, and by Harms (1974) from Turnor L. Boivin (1967b) parenthetically listed NW Saskatchewan, indicating that he had not verified any reports. The *Potentilla pensylvanica* complex in Saskatchewan needs careful study. It now appears that most, although not all, specimens of the species (sensu lat.) from boreal Saskatchewan belong to this variety.

RHAMNACEAE

Rhamnus alnifolia L'Her.

Cluff L., moist gallery mixedwoods, *Harms, Skogland & Wright 24079.* This collection appears to represent an approximately 250-mile northward extension of the known range of this species in Saskatchewan. However, its reported range in Manitoba and

Alberta suggests that the distributional gap is likely artificial due to inadequate collecting. Also, Raup (1936) reported the species as common in the lower Athabasca R. region of Alberta, less than 75 miles SW of the Cluff L. area.

OENOTHERACEAE

Circaea alpina L.

Ca. 1 mi. N of La Ronge, birch-alder-willow shrub zone bordering stream, *Ternier & Jasieniuk 2096;* Numabin Bay of Reindeer L. near Southend, rocky creek bank, *Ternier & Lamont 599;* Geikie R. SW of Wollaston L., *Ternier & Jasieniuk 2547;* inlet stream from Parks L. to Hidden Bay of Wollaston L., moist lush birch-black spruce-river alder gallery mixedwoods, *Harms 21595, Harms & Wright 23746.* The plants were locally abundant at most of the above sites. We are unaware of any previous collections of this species from the northern half of Saskatchewan, *i.e.* north of known sites at Waskesiu L., Candle L. and Big Sandy L. Thus, the Wollaston L. collections appear to represent a 250-mile northward range extension in Saskatchewan, although the species is known from equally as far north in Alberta.

HALORAGACEAE

Myriophyllum alterniflorum DC.

McLennan L., *Ternier & Lamont 1106;* Jaysmith L., *Ternier & Lamont 2570;* Wierzycki L., *Ternier & Lamont 970 & 971;* Cluff L. area, Sandy L., *Hudson & Polson 3715.* The plants were growing submerged in shallow lake water (less than 0.5 m depths). This species was not cited by Breitung (1957) for Saskatchewan. Boivin (1968) listed the following records for the Prairie Provinces: Axis L. (Saskatchewan), and Cochrane R. and Reindeer L. (Manitoba). Harms & Hudson (1974) recorded it from Little Amyot L. at SW end of Lac Ile-a-la-Crosse. Three of the new collections were made within 20 miles of each other, but these, plus the Cluff L. record, add significantly to the known distribution of this sporadically occurring aquatic in the Prairie Provinces.

Myriophyllum verticillatum L. var. **pectinatum** Wallr.

Ca. 5 mi. W of Reindeer R. & 5 mi. N of White L., submerged in shallow water of creek shore fen, *Heilman 2490.* To our knowledge,

this apparently rare aquatic has been recorded elsewhere in Saskatchewan only from Prince Albert and Yorkton (Breitung, 1957), Candle L. (Jeglum, 1972), Nipawin Prov. Park (*Argus & Hudson 4440*), Melfort (*Millar 65-168*), and SE of Big Beaver (*Ledingham 4986*, USAS). The present collection extends northward of the formerly known range of the species in the southern boreal forest region of the province. However, since the species has been recorded from much of the Mackenzie District, N.W.T. (Porsild & Cody, 1968), our northern Saskatchewan record is hardly surprising. The species should be looked for throughout boreal Saskatchewan. The variety appears well-marked, and we cannot concur with Boivin (1968), who considered it a taxonomic synonym of *M. spicatum* (Watt.) B.S.P. (including *M. exalbescens* Fern.).

APIACEAE

Cicuta mackenzieana Raup.

Cluff L. area: 1.5 mi. N of Island L., open bog pools, *Harms, Skoglund & Wright 24380.* Hidden Bay of Wollaston L., wet sedge shore fen, *Harms 21724 & 22121.* Ca. 4 mi. N of Courtenay L., shallow water off lakeshore, *Ternier & Jasieniuk 1404.* 1.5 mi. S of Bothwell L., aquatic in small lake, *Ternier & Jasieniuk 1786.* S end of Sandy Bay on Churchill R., shallow water off lakeshore, *Harms 23098.* McDonald Cr., NE of Steephill L. on Reindeer R., aquatic and shallow marsh, *Heilman 2415.* W of Reindeer R., 5 mi. N of White L., shore sedge fen bordering creek, *Heilman 2480.* Jaysmith L., boggy lakeshore, *Ternier & Lamont 882.* Meadow L. Prov. Park: SE shore of First Mustus L., shallow water, *Harms 20644;* S shore of Greig L., shallow water edge, *Harms 20373.* We have also revised to this species the following specimens in the Fraser Herbarium: Stony Rapids, *Maini 294;* and Lazy Edward Bay of Cree L. *Maini 148.* This was once thought to be a subarctic species restricted to northernmost Saskatchewan (L. Athabasca, Raup, 1936; Carswell L., Argus, 1964; Hasbala L., Argus, 1966), but recent collections have shown it to extend sporadically nearly throughout the boreal forest region of the province.

PYROLACEAE

Chimaphila umbellata (L.) Bart. [includ. var. *occidentalis* (Rydb.) Blake, & var. *cisatlantica* Blake].

E shore of Pita L. on Churchill R., moist mixed forest, *Heilman 2151*. 4 mi. N of Denare Beach at NE end of Amisk L., rock outcrops of open woodland, *Skoglund 441*. Cluff L. area: Sandy L., mesic white birch-Jack pine forest, *Hudson & Polson 3711*. This species has usually been considered rare in Saskatchewan where it was known only from the S shore of L. Athabasca (Raup, 1936), White Fox, Birch L., and the Cypress Hills (Breitung, 1957). There is also a specimen in the Fraser Herbarium from La Ronge (*Maini 172*). Specimen labels indicate a scarcity of the plants at most Saskatchewan sites. It does not appear meaningful to attempt a varietal separation of material of this species, but if such a distinction was made, Saskatchewan specimens seem nearest to var. *occidentalis* on the basis of its conspicuous leaf venation.

Pyrola elliptica Nutt.

Meadow L. Prov. Park: E side of Kimball L., white birch forest, *Harms 20511*. Otter Rapids of Churchill R., black spruce-aspen forest, *Ternier & Jasieniuk 2587*. Reindeer R., midway between The Two Rivers & Steephill L., aspen-white birch forest, *Heilman 1505*. Cluff L., aspen forest, *Harms, Skoglund & Wright 24126*. Previously this species was known in Saskatchewan primarily from the aspen parkland region. The present collections from the Churchill and Reindeer Rivers, plus the recently reported ones from Lac Ile-a-la-Crosse (Harms, 1974), extend its more southern Saskatchewan main range nearly 200 miles northward into the boreal forest region. However, the present Cluff L. collection, together with Raup's (1936) much earlier report from the L. Athabasca region, still indicate a disjunct area in northwestern Saskatchewan that is separated from a southern area by a 200-mile gap.

MONOTROPACEAE

Monotropa uniflora L.

Bervin L., *Ternier & Jasieniuk 1172*. McLennan L., *Ternier & Lamont 1086; Harms 22780*. SW side of Wintego L. of Churchill R., *Heilman 1964*. Pita L. of Churchill R., *Heilman 2152*. W side of Sokatisewin L. of Churchill R., *Heilman 1795*. S end of Sandy Bay of Churchill R., 5 mi. S of Island Falls, *Harms 23190*. Reindeer R. near The Two Rivers, *Heilman 1696*. Meadow L. Prov. Park: land strip between Kimball L. & Raspberry L., *Harms 24696*. At most of the above sites, the plants were scarce in rich mixedwood forests.

This conspicuous saprophyte, which once was considered rare in Saskatchewan, had been reported from L. Athabasca (Raup, 1936), Big River, Emma, Waskesiu and Amisk Lakes (Breitung, 1957). There are also specimens in the Fraser Herbarium from Lac la Ronge (*Argus 182-61; Maini 596*), Candle L. (*Swan 62-285*), and White Gull Creek (*Anderson 1308*). The known records show the species to be quite widespread, though sporadic, in the southern boreal forest of Saskatchewan south of 56° latitude, but with an apparent 200-mile gap separating the southern area from the L. Athabasca locality. This disjunction is probably an artifact due merely to inadequate collecting in northern Saskatchewan, since the species has been recorded from almost throughout the boreal forest zone of the other western Canadian provinces and Mackenzie District, N.W.T. (Boivin, 1966–67; Porsild & Cody, 1968).

ERICACEAE

Arctostaphylos alpina (L.) Spreng. subsp. **rubra** (Rehd. & Wilson) Hult.

Cluff L. area: 1½ miles W of Island L., "boggy" black spruce woods and treed bog, *Harms, Skoglund & Wright 24438*. Pasquia Hills, on sphagnum moss in black spruce woods, *Hudson 2897*. This arctic-subarctic plant was previously known in Saskatchewan only from the N shore of L. Athabasca (Raup, 1936), Hasbala L. in the NE corner of the province (Argus, 1966), and Candle L. (Argus, 1968). The Candle L. and Pasquia Hills records are quite far south in the boreal forest region, therefore suggesting the possible sporadic presence of *A. alpina* elsewhere in the Saskatchewan boreal forest zone. However, this seems another example of the possible distribution pattern referred to under *Anemone parviflora*, — *i.e.* a subarctic element surviving disjunctly in the Candle L.-Pasquia Hills area.

Ledum palustre L. ssp. **decumbens** (Ait.) Hult. [*L. decumbens* (Ait.) Lodd.].

Hidden Bay of Wollaston L., treed bogs and moist black spruce forests, *Harms 21563 & 21869*. Cluff L. area: open and treed bogs, *Harms 23784 & 23969; Harms, Skoglund & Wright 24097*. Wheeler R. near Russell L., *Sphagnum* bog, *Godwin, Aug. 1978*. This arctic species has been infrequently collected in Saskatchewan, where it was reported previously from L. Athabasca (Raup, 1936), Reeves L.

(Breitung, 1957), Grove L. and Offset L. (Scotter, 1961), and the Hasbala L. area (Argus, 1966). At some bog sites it was found to be an abundant and codominant low shrub. There are earlier collections filed in the Fraser Herbarium from Stony Rapids (*Maini 549*) and Cree L. (*Maini 31, 41, 217*). Although Breitung (1957) indicated that *L. palustre* occurred only "in the extreme northern part of our area", the present collections extend its range in the province over 100 miles southward. It may be frequent throughout the subarctic transitional lichen-woodland region of Saskatchewan, but also extends somewhat farther southward in favorable bog sites where it occurs with the more abundant *L. groenlandicum* Oeder. In our experience the two species always appear quite well-marked with no obvious evidence of intergradation. Thus, we must disagree with Boivin's (1967b) statement that the "bog phase" (=*L. groenlandicum*) grades northward into the "tundra phase" (=*L. p.* ssp. *decumbens*), and with his conclusion that *L. groenlandicum* should be treated as a variety of *L. palustre*.

Vaccinium uliginosum L.

Collins Bay of Wollaston L., common in moist-drier black spruce forests, *Harms 21919*. Above Pow Bay of Wollaston L., common in regenerating black spruce burns, *Harms & Wright 23774*. Hidden Bay of Wollaston L., common on shrub shores, black spruce woods and burns, *Harms 21463, 21550, 21632 & 21800*. Minor Bay of Wollaston L., common in open dry black spruce-lichen woods, *Harms 22265*. 15 mi. S of Geikie R. Crossing, dry burned-over spruce bog, *Ternier & Jasieniuk 1358*. Courtenay L., willow-birch-*Ledum* shrub zones, *Ternier & Jasieniuk 1500*. Peter L., common in wet shrubby area near shores, *Ternier & Jasieniuk 1564*. Wathaman R., uncommon in burned jack pine forest, *Ternier & Jasieniuk 1767*. Cluff L., mesic cut-over black spruce forest, *Hudson & Polson 3689*. Wilson L., in *Carex*-shrub *Betula-Chamaedaphne* fen, *Godwin, Aug. 1978*. A largely sub-arctic species, previously known in Saskatchewan only from the far north, where it was reported at L. Athabasca (Raup, 1936), Offset L. (Scotter, 1961), and Hasbala L. (Argus, 1966), and is also represented in the Fraser Herbarium by collections from Clut L. (*Campbell, July 31, 1935*), Hatchet L. (*Maini 89*), and the Stony Rapids area (*Maini 324, 443, & 524*). Present information indicates that *V. uliginosum* is a common and characteristic species throughout the subarctic transitional lichen-

woodland region of northern Saskatchewan and also occurs sporadically somewhat to the south in suitable habitats of the northern boreal forest zone.

PRIMULACEAE

Primula mistassinica Michx.

Cluff L., rare on moist shaded shorelines, *Harms 23856; Harms, Skoglund & Wright 24175*. Carrot R. Prov. Forest, wet open black spruce-tamarack forest, *Hudson 3173*. To our knowledge, this boreal species has been recorded elsewhere in Saskatchewan from only L. Athabasca (Raup, 1936), Amisk L., Prince Albert and Nipawin (Breitung, 1957), and the Hasbala L. area (Argus, 1966). The species is widespread, but sporadic, in its distribution.

SCROPHULARIACEAE

Euphrasia subarctica Raup [*E. arctica* Lange var. *dolosa* Boivin; *E. hudsoniana* Fern. & Wieg.; *E. disjuncta* auct. of Sask. reports].

Pita L. on Churchill R., moist crevices of rock outcrops, *Heilman 2229*. Birch Rapids Portage, N of Leaf Rapids, ca. 38 mi. W of Creighton, rock outcrops, *Skoglund 420*. Buffalo Narrows, wet roadside in town limits, *Delanoy 1*. This apparently rare species in Saskatchewan was first recorded for the province by Raup (1936) from L. Athabasca and Clut L. Only the L. Athabasca locality was listed by Breitung (1957). Boivin (1972) parenthetically listed NW Saskatchewan as the range of this taxon, implying that he had not verified Raup's records. Harms & Hudson (1974) recorded it from La Loche. An earlier collection from Stony Rapids (*Maini 520*) is in the Fraser Herbarium. Our additional records amplify considerably the known localities for this sporadically occurring species and extend southward its known range in the province to Buffalo Narrows and the Leaf Rapids area.

Pedicularis labradorica Wirsing.

W side of Pow Bay of Wollaston L., burnt black spruce forest, *Harms & Wright 23775*. W-SW of Hidden Bay of Wollaston L., open dry black spruce forest, *Harms 22144 & 22240; Harms & Wright 23729*. Geikie R., *Ternier & Jasieniuk 2515*. 15 mi. S of Geikie R. Crossing, burnt jack pine forest, *Ternier & Jasieniuk 1381*. This presumably rare species was previously recorded only

from northernmost Saskatchewan: McKeever L., (Scotter, 1961) and the Hasbala L. vicinity (Argus, 1966). The present records represent a southward extension of the known range of this lousewort and suggest that it may occur throughout the subarctic transitional lichen-woodland zone of northeastern Saskatchewan.

Pedicularis parviflora J. E. Smith. [*P. macrodonta* Richards.].

Hidden Bay of Wollaston L., wet sedge shore fens, *Harms 20967 & 22135*. Collins Creek, near mouth into Collins Bay of Wollaston L., wet sedge shore fen, *Harms 21976*. Ca. 5 mi. S-SW of MacDowall, open tamarack-shrub birch fen, *Hudson 2714*. Previously recorded in Saskatchewan from L. Athabasca (Raup, 1963), McKague, Candle L., and Prince Albert (Breitung, 1957), and also by a specimen in the Fraser Herbarium from Big Sandy L. (tamarack-dwarf birch fen, *Hudson & Argus 4509*). Widespread though sporadic in Saskatchewan and apparently scarce at all known sites.

Rhinanthus crista-galli L.

Churchill R., Wintego L., open disturbed area on small island, *Heilman 2049*. Churchill R., Pita L., open disturbed water edge, *Heilman 2092*. S end of Sandy Bay on Churchill R., open area above sandy beach, *Harms 20055; Harms 23117*. Island Falls Dam on Churchill R., partially overgrown trail, 3 Sept. 1975, *Harms 23231B*. Thomson Bay, S side of L. Athabasca, white spruce forest along beach, *Hermesh 442*. Buffalo Narrows, roadside ditch, *Delanoy 4*. The species was reported in Saskatchewan from the Cypress Hills (Breitung, 1954), Ile-a-la-Crosse and Carnduff (Breitung, 1957). However, the Carnduff report is based on a T. N. Willing collection in the Fraser Herbarium with dubious locality data and should be discounted as unverified. The present collections extend the known range of this species in Saskatchewan east to the eastern Churchill R. area and north to L. Athabasca. It is noteworthy that, except for the Cypress Hills and L. Athabasca collections, all Saskatchewan records of the plant are from along the upper or lower Churchill River.

LENTIBULARIACEAE

Pinguicula villosa L.

Geikie R., SW end of Wollaston L., *Ternier & Jasieniuk 2523*. 15 mi. S of Geikie R. Crossing, black spruce treed bog, *Ternier & Jasieniuk 1391*. Courtenay L., moist tamarack-sphagnum bog,

Ternier & Jasieniuk 1533. David L., wet treed bog, *Ternier & Jasieniuk 1982.* Previously known along the north shore of L. Athabasca (Raup, 1936), Offset L. (Scotter, 1961), and Hasbala L. (DeVries, 1977). The present records represent a 200-mile southward extension of its known range in Saskatchewan. This inconspicuous plant may often have been overlooked by the few collectors in northern Saskatchewan.

Pinguicula vulgaris L.

Near Mennon, N of Langham, calcareous bog, *Hudson 2623.* 2 km E of Silver Grove, ca. 24 km S of Shellbrook, mineral spring, *Cameron 552.* Cluff L., moist shorelines, *Harms, Skoglund & Wright 24174.* This was included by Argus & White (1975) on their preliminary list of rare and endangered species in Saskatchewan. It has been recorded from Prince Albert (Breitung, 1957), Strawberry L. S of Indian Head (Jones, 1964), Hasbala L. (Argus, 1966), and Candle L. (Jeglum, 1972). The more northern Saskatchewan localities are not isolated since the species has been recorded from Keewatin and Mackenzie Districts, N.W.T. (Boivin, 1966–67; Porsild & Cody, 1968). It appears to be absent in boreal Saskatchewan between latitudes 54° and 58° N. This butterwort seems widespread but rather sporadic in Saskatchewan. However, the local populations are usually quite large.

Utricularia cornuta Michx.

Ca. 13 mi. W of Numabin Bay of Reindeer L., *Ternier & Jasieniuk 2230 (in part).* 7.5 mi. S of Geikie R., *Ternier & Jasieniuk 2404B.* Cluff L., very wet open quaking fen, *Hudson & Polson 3691.* The habitat of the plants was very shallow water of sheltered, marshy or "boggy" shores. The only previous report was from the S shore of L. Athabasca (*Argus 461–62;* Boivin, 1972). This may be a very rare species in Saskatchewan, but is possibly overlooked because vegetatively it is difficult to detect, especially when intermixed with *U. intermedia* Hayne as it was at the above sites.

Utricularia minor L.

SW side of Trade L. on Churchill R., creek channel, *Heilman 2597.* Between Davin L. and Wathaman L., aquatic at edge of small lake, *Ternier & Jasieniuk 1788.* An infrequently collected species in Saskatchewan previously reported from L. Athabasca (Raup, 1936), Dahlton and Nipawin (Breitung, 1957), Candle L. (Jeglum, 1972), and from S. of La Loche (Harms, 1974). In the Fraser Herbarium

there are also specimens from Nipawin Prov. Park (*Argus 4426*), Arelee (*Hudson 2552*), and Mennon (*Hudson 2622*). Including these new records, it is known from at least 10 scattered localities in the boreal and aspen parkland regions of the province. However, it may often be overlooked by collectors because of infrequent flowering and confusion in the field with depauperate plants of the more common *U. vulgaris* L.

LOBELIACEAE

Lobelia dortmanna L.

Near Steephill L. on Reindeer R., *Heilman 2438*. Reindeer R. between Atik Falls and The Two Rivers, *Polson 95*. Devil Rapids on Reindeer R., *Polson 160*. Geikie R., *Ternier & Jasieniuk 2474*. Wollaston L. area: North L., N of Rabbit L., *Harms 22029; Harms & Wright 23665*. Cluff L. area: Germaine L. & Snake L., *Harms Skoglund & Wright 24084 & 24566*. This largely submersed to sometimes emergent aquatic plant occurred at 0.5–8 dm water depths off quiet wave-sheltered shores. It was previously considered rare in Saskatchewan, being known only from Windrum L. (Breitung, 1957), Little Gull L. S. of L. Athabasca and Carswell L. (Argus, 1964), Methy Portage (Boivin, 1972), and Little Amyot L. SW of Lac Ile-a-la-Crosse (Harms & Hudson, 1974). The present collections increase considerably the number of recorded stations in Saskatchewan, and expand its known range across the boreal forest belt in eastern Saskatchewan.

Lobelia kalmii L. [*L. strictiflora* (Rydb.) Lunell].

Cluff L. area: Snake L., moist mossy open shore, *Harms, Skoglund & Wright 24289*. We are not aware of any previous records for this species in boreal Saskatchewan from north of Prince Albert Nat'l. Park, Candle L., and Big Sandy L. Thus, the present collection appears to represent a 250-mile northward extension of the Saskatchewan range and the first record from the northern half of the province. However, the reported occurrence of the species in the Mackenzie District (Boivin, 1966–67; Porsild & Cody, 1968; Cody, 1978) makes our Cluff Lake area collection expected. The present record is near the midpoint of the 500-mile gap reported by Cody (1978) between the northern and southern areas of this species. The species should be looked for at least throughout western boreal Saskatchewan.

ASTERACEAE

Anaphalis margaritacea (L.) Benth. & Hook.

Cluff L.: Sandy L., scarce on beach & roadside, *Abouguendia 29-7-78; Polson, et al. 13-6-78*. Now known from the Cypress Hills (Breitung, 1954 & 1957), and very rare at three other widely spaced localities in westernmost Saskatchewan: Cutknife (Breitung, 1957; but in SCS not SASK); Buffalo Narrows (Harms & Hudson, 1974), and the Cluff L. area.

Antennaria neodioica Greene [*A. neglecta* Greene var. *attenuata* (Fern.) Cronq.].

Devil L., Churchill R., uncommon on rock outcrops above lake, *Ternier & Jasieniuk 2630*. Previously reported in the province only from the Cypress Hills (Breitung, 1957). The present record represents an over 400-mile northeastward range extension within Saskatchewan. The species has been recorded from Wekusko L. and Riding Mtn., as well as various other Manitoba localities, and also from Alberta. In addition, we have tentatively revised to this taxon a vegetative specimen from south of Big Muddy L. (*Morrison 68-493*), but better verification is needed for the latter.

Arnica lonchophylla Greene var. **lonchophylla.**

Ca. 1 mi. SW of Hidden Bay of Wollaston L., open black spruce woods and roadside, *Harms 22233*. Cluff L. area: 1½ mi. W of Island L., occasional on semi-open aspen-wooded and open dolomitic ridges and cliffs, *Harms 23889A&B; Harms, Skoglund & Wright 24418*. To our knowledge, this primarily subarctic plant is known elsewhere in Saskatchewan only from three widely separated localities: the N shore of L. Athabasca, Amisk L. (Breitung, 1957), and Hasbala L. (Argus, 1966). A depauperate specimen from Candle L. (*Anderson 1157*) has also been tentatively revised by us to this species, but the latter locality record requires better verification. Some of our northern Saskatchewan specimens morphologically approach the arctic *A. alpina* (L.) Olin ssp. *attenuata* (Greene) Maguire, which has been reported from the N shore of L. Athabasca (Raup, 1936) and Hasbala L. (DeVries, 1977).

Bidens beckii Torr. [*Megalodonta beckii* (Torr.) Greene].

Ca. 3 mi. W-SW of Missinipe, aquatic in pond in small tributary of Otter L., *Harms 22734*. This represents the third locality for this apparently rare species in Saskatchewan. It was previously reported

in the province from the Cumberland L. area (Breitung, 1957; Boivin, 1972) and from Little Amyot L. (Harms & Hudson, 1974). The three Saskatchewan localities are widely spaced across the southern boreal forest belt.

Erigeron elatus (Hook.) Greene [*E. acris* L. var. *elatus* (Hook.) Cronq.].

Ca. 5 mi. S-SW of MacDowall, wet boggy black spruce woods, *Harms 22853*. Meadow L. Prov. Park: S side of Greig L., disturbed aspen-bordered gravel pit, *Harms 20381*. "Height of Land", 28 mi. S of Meadow Lake, moist grassy open edge of spruce forest, *Hudson 3410*. Raup (1936) first reported this species from Saskatchewan (N shore of L. Athabasca, as *E. acris* var. *arcuans* Fern.). However, the species was not included for the province by Fraser & Russell (1937 & 1953) or Breitung (1957). Boivin (1972) listed Saskatchewan only parenthetically indicating that reports were unverified by him. Jeglum (1972) reported the species from Candle L. Harms (1974) recorded it from Taylor L. It represents an infrequently collected if not a rare species with the known stations being widely spaced. Probably the species has been much overlooked in the field because of its general similarity to the more common *E. acris* var. *asteroides* (Andrz.) DC.

Erigeron glabellus Nutt.

Cluff L. area: 1.5 mi. W of Island L., open dolomite cliff summit and ridges, *Harms, Skoglund & Wright 24423B*. This record, and a collection from a similar habitat at Carswell L. (Argus, 1964), suggests a disjunct area of occurrence in northwestern Saskatchewan that is separated by a gap of nearly 250 miles from the main range of the species farther south in the province, where it is quite frequent in the grassland, aspen parkland, and southern boreal forest regions. The above statement is based on a restudy of available herbarium specimens, discounting literature reports, since there has been confusion between this species and *E. asper* Nutt.

Erigeron hyssopifolius Michx.

Cluff L. area, moist jack pine-black spruce forest on dolomitic outcrops, *Abouguendia, 7-8-78*. Swift Creek of Lightning Bolt, E of Macoun L., wet tamarack bog, *Ternier & Jasieniuk 2020*. Gull Creek Crossing of Hwy. 120, near Gull L., 15 mi. NE of Candle L., black spruce muskeg, *Anderson 1049*. Carrot R. Prov. Forest: N of

Carrot R., open black spruce-tamarack fen forest over limy till, *Hudson 3168*. This rare species has been reported elsewhere in the province from only Amisk L. (Breitung, 1957), Hasbala L. (Argus, 1966), and Carswell L. (Argus, 1964). The cited collections double the known Saskatchewan stations for the species and help somewhat to narrow the gaps in its distribution.

Gnaphalium uliginosum L.

S end of Sandy Bay of Churchill R., 5 mi. S of Island Falls, dirt trail in aspen woods, *Harms 23346*. SW side of Candle L., mineral soil of road depression, *Anderson 1433*. Near Court, W of Kerrobert (SW ¼ Sect. 26, T34 N, R28 W 3rd M), disturbed mud of slough, *Hudson 3235*. This introduced species is known from only a few scattered localities in Saskatchewan, including Loon Lake (Breitung, 1957), Saskatoon, Rosetown and Paradise Hill (Boivin, 1972). Although it is similar to the native *G. palustre* Nutt., our material would appear well enough marked.

Senecio streptanthifolius Greene [*S. cymbalarioides* Nutt. var. *borealis* (Torr. & Gray) Greenm.].

Cluff L. area: 1.5 mi. W of Island L., open dolomite outcrops and cliff, *Harms, Skoglund & Wright 24416 & 24437*. ¼ mi. N of Cluff L., open disturbed areas over metamorphic bedrock, *Harms 23803; Harms, Skoglund & Wright 24372B*. The Cluff L. area represents the third general Saskatchewan locality known for this rare subarctic and alpine plant. It was earlier reported in the province from northwestern Saskatchewan at calcareous sites on the N shore of L. Athabasca (Raup, 1936) and Carswell L. (Argus, 1964).

Solidago multiradiata Ait.

Cluff L. area: 1.5 mi. W of Island L., dolomite outcrops of pine-wooded ridge, *Harms, Skoglund & Wright 24468*. White Gull L. area, 2 mi. SW of White Gull Cr. Bridge, rare in cleared jack pine-black spruce stand, *Anderson 1262*. This predominantly arctic-subarctic and subalpine species was previously reported in Saskatchewan only from widely separated stations at Ile-a-la-Crosse and Waskesiu L. (Breitung, 1957). Raup (1936) recorded it from the lower Athabasca R. in NE Alberta. More recently, Harms (1974) reported it from Lac la Plonge, La Loche, and several localities N of Buffalo Narrows. The present collection from the Cluff L. area

represents the northernmost record for the species in Saskatchewan, and apparently is the only one to date on the Precambrian Shield in this province.

Other species: Various additional vascular plant species, which in the past had been only infrequently collected and often presumed to be rare or at least relatively uncommon in the province, have recently been found to be much more frequent in boreal Saskatchewan than once believed. Although the individual collections upon which their new status is based are far too numerous to cite here, these taxa at least deserve a brief listing as follows: *Carex adusta* Boott., *Cypripedium acaule* Ait., *Juncus brevicaudatus* (Engelm.) Fern., *J. filiformis* L., *Lycopus uniflorus* Michx., *Oxycoccus quadripetalus* Gilib., *Poa interior* Rydb., *Polygonum cilinode* Michx., *Pyrola minor* L., *Scirpus microcarpus* Presl., *Sparganium angustifolium* Michx., *S. chlorocarpum* Rydb., *S. minimum* (Hartm.) Fries, *Viola palustris* L. and *V. renifolia* A. Gray.

LITERATURE CITED

ANDERSON, H. K. 1976. Vegetation and Land Forms in the Candle Lake, Saskatchewan, Area. Ph.D. Thesis, University of Saskatchewan, Saskatoon.

ARGUS, G. W. 1964. Plant collections from Carswell Lake and Beartooth Island, northwestern Saskatchewan, Canada. The Canad. Field-Naturalist, **78:** 139–149.

_____. 1966. Botanical investigations in northeastern Saskatchewan: The subarctic Patterson-Hasbala Lakes region. The Canad. Field-Naturalist, **80:** 119–143.

_____. 1968. Contributions to the flora of boreal Saskatchewan. Rhodora, **70:** 200–214.

_____, & D. WHITE. 1975. A preliminary list of the rare plants of Saskatchewan. National Museums of Canada, Ottawa. 14 pp.

BOIVIN, B. 1966–1967. Enumeration des Plantes du Canada, I–VI. Naturaliste Canadien, **93 & 94.** Reprinted as Provancheria, No. **6,** Mém. de l'Herbier Louis-Marie, Univ. Laval, Qué.

_____. 1967b. Flora of the Prairie Provinces, Part I — Pteroids, Ferns, Conifers and Woody Dicopsids. (Reprinted from Phytologia, **15 & 16**). 202 pp.

_____. 1968. Flora of the Prairie Provinces, Part II — Digitatae, Dimerae, Liberae. (Reprinted from Phytologia, **16–18**). 185 pp.

_____. 1972. Flora of the Prairie Provinces, Part III — Connatae. (Reprinted from Phytologia, **22 & 23**). 224 pp.

BREITUNG, A. J. 1954. A botanical survey of the Cypress Hills. The Canad. Field-Naturalist, **68:** 55–92.

_____. 1957. Annotated catalogue of the vascular flora of Saskatchewan. The Amer. Mid. Naturalist, **58:** 1–72.

_____. 1959. Supplement to "Flora of Saskatchewan". The Amer. Mid. Naturalist, **61:** 510–512.

CALDWELL, B. 1960. A new pondweed for Saskatchewan, *Potamogeton robbinsii*. The Blue Jay **18:** 129.

CODY, W. J. 1978. Range extensions and comments on the vascular flora of the continental Northwest Territories. The Canad. Field-Naturalist, **92:** 144–150.

DEVRIES, B. 1977. Further notes on the vascular flora of the Hasbala Lake region, Saskatchewan. The Blue Jay, **35:** 74–76.

DIRSCHL, H. J. & R. T. COUPLAND. 1972. Vegetation patterns and site relationships in the Saskatchewan River delta. The Canad. J. Bot., **50:** 647–675.

ERSKINE, A. J. 1974. Off into the wet green yonder: birds and plants of a boreal bog. The Blue Jay, **32:** 33–37.

FRASER, W. P. & R. C. RUSSELL. 1944. An Annotated List of the Plants of Saskatchewan. University of Saskatchewan, Saskatoon, Sask. 64 pp.

———. 1953. An Annotated List of the Plants of Saskatchewan. University of Saskatchewan, Saskatoon, Sask. (Rev. by R. C. RUSSELL, G. F. LEDINGHAM & R. T. COUPLAND). 55 pp.

HARMS, V. L. 1974. Botanical studies in the boreal forest along the Green Lake-La Loche Road, northwestern Saskatchewan. The Musk-Ox **14:** 37–54.

———. 1977a. Wildlife and Vegetation Survey at Gulf Minerals Uranium Operation at Wollaston Lake. III. Vegetation Survey. Saskatchewan Research Council, Report **C76-2.** Saskatoon, June, 1977. 182 pp. and infold map.

———. 1977b. Review of the Vegetation Assessment of the Proposed Cluff Lake Uranium Mining Operations. Part 2 — A Baseline Survey of the Flora and Vegetation of the Cluff Lake Area. The Cluff Lake Board of Inquiry and Saskatchewan Department of the Environment. Regina, October, 1977. 151 pp and infold map.

———. 1978. Additional records for some rare or uncommon native orchids in Saskatchewan. The Blue Jay, **36:** 130–136.

———, & J. H. HUDSON. 1974. Some new and noteworthy vascular plant records from northwestern Saskatchewan. Rhodora, **76:** 39–44.

———, & ———. 1978. Some vascular plants new to the flora of Saskatchewan. The Canad. Field-Naturalist, **92:** 389–391.

HEILMAN-TERNIER, J., & V. L. HARMS. 1975. Plant Ecology-Taxonomy, Final Report **5.** Churchill River Study (Missinipe Probe). Gov't. of Saskatchewan, Saskatoon, Saskatchewan. 126 pp.

HERMESH, R. 1972. A Study of the Ecology of the Athabasca Sand Dunes with Emphasis on the Phytogenic Aspects of Dune Formation. M.Sc. Thesis, University of Saskatchewan, Saskatoon. 158 pp.

HOOKER, W. J. 1829–1840. Flora Boreali-Americana. London. Vol. I - 351 pp. Vol. II - 328 pp.

HUDSON, J. H. 1971. Of *Eragrostis* and range extensions: 1970 botanical remarks. The Blue Jay, **29:** 96–98.

———. 1974. Plant records for Saskatchewan — 1973 version — starring Porcupine Mountain. The Blue Jay, **32:** 210–214.

———. 1976. 1974 plant records from Saskatchewan; rediscoveries, discoveries and other curiosities. The Blue Jay, **34:** 9–13.

———. 1977. *Carex* in Saskatchewan. Bison Press, Saskatoon, Sask. 193 pp.

HULTÉN, E. 1968. Flora of Alaska and Neighboring Territories. Stanford University Press, Stanford, California. 1008 pp.

JEGLUM, J. K. 1972. Boreal forest wetlands near Candle Lake, Central Saskatchewan. I. Vegetation. The Musk-Ox, **11:** 41–58.

JONES, G. J. 1964. *Pinguicula vulgaris* in southern Saskatchewan. The Blue Jay, **22:** 117–118.

KUJT, E. 1959. New record of small white water-lily. The Blue Jay, **17:** 162.

LOOMAN, J. 1973. Some new and interesting plant records for the prairie provinces. The Blue Jay, **31:** 176–179.

MACOUN, J. 1890. Catalogue of Canadian Plants, Part V — Acrogens. Wm. Foster Brown & Co., Montreal, pp. 249–398.

MORRISON, H. 1969. A preliminary botanical survey of the Big Muddy Valley in southern Saskatchewan, 1968. The Blue Jay, **27:** 42–53.

MOSS, E. H. 1959. Flora of Alberta. University of Toronto Press, Toronto, Ontario. 546 pp.

NEWSOME, R. D. & R. L. DIX. 1968. The forests of the Cypress Hills, Alberta and Saskatchewan, Canada. The Amer. Midl. Naturalist, **80:** 119–185.

PACKER, J. G. & M. G. DUMAIS. 1972. Additions to the flora of Alberta. The Canad. Field-Naturalist, **86:** 269–274.

PORSILD, A. E. & W. J. CODY. 1968. Checklist of the Vascular Plants of Continental Northwest Territories, Canada. Canada Dept. of Agriculture, Ottawa, Ontario. 101 pp.

RAUP, H. M. 1936. Phytogeographical studies in the Athabasca-Great Slave Lake region. I. Catalogue of the Vascular Plants. Journal Arnold Arbor. **17:** 180–315.

SCOGGAN, H. J. 1957. Flora of Manitoba. National Museum Canada Bulletin **140,** Ottawa. 619 pp.

SCOTTER, G. W. 1961. Botanical collections in the Black Lake region in northern Saskatchewan (1960). The Blue Jay, **19:** 28–33.

———. 1964. Effects of forest fires on the winter range of Barren-Ground Caribou in northern Saskatchewan. Canadian Wildlife Service, Wildlife Management Bulletin, Ser. 1, No. **18.**

SWAN, J. M. A. & R. L. DIX. 1966. The phytosociological structure of upland forest at Candle Lake, Saskatchewan. J. Ecol. **54:** 13–40.

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